

A NEW CAVE-DWELLING SPECIES OF *LACCOCENUS* SLOANE
(COLEOPTERA: CARABIDAE: PSYDRINI) FROM SOUTHERN
NEW SOUTH WALES

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Abstract

Laccocenus vicinus sp. n. is described from Deua Cave, southern New South Wales and compared with *L. ambiguus* Sloane. Although *L. vicinus* shows no evident morphological adaptation to cave-dwelling, its type series was associated with bat guano and includes one teneral individual, thus indicating that the species should be classified as a troglophile.

Introduction

Sloane (1890) erected his monotypic new genus *Laccocenus* without defining its precise position in the Carabidae, although he indicated that it was probably related to *Moriomorpha* Castelnau and *Melisodera* Westwood since, in all three genera, the mandibles carry a seta in their scrobes. Subsequently, Sloane (1898) placed all these genera, plus others with this mandibular character, in the hitherto monobasic tribe Nomiini Horn, based on the non-Australian *Nomius* Castelnau. Still later, Sloane (1920) abandoned this tribe and included all the genera in the Pterostichini, where the mandibular seta is generally wanting, but in this he was not followed by authors overseas (e.g. van Emden 1936), who recognised the fundamental importance of the mandibular seta. In my revision of the relevant Australian genera (Moore 1963), I placed *Laccocenus*, along with *Nomius* and the North American *Psydrus* Leconte, in the tribe Psydrini within the subfamily Psydrinae Leconte and this is its currently accepted position, although the limits of the Psydrinae and the rankings of the suprageneric taxa are still matters of debate.

Since its original description (Sloane 1890), based on specimens from the Richmond River district in northern New South Wales, the type species of *Laccocenus* (*L. ambiguus* Sloane) has been recorded quite widely from localities ranging from southern Queensland to central New South Wales (Fig. 4). However, material collected during two faunal surveys of Deua Cave (35°43'S, 149°49'E) in southern New South Wales indicates a second species within the genus and this new species is described below. Deua cave was discovered in 1980 and occurs in one of the five (rather limited) limestone areas within Deua National Park but it was not covered in the Australian Karst Index 1985 (Matthews 1985).

Laccocenus vicinus sp. n.

(Figs 1-2)

Types. Holotype ♂, NEW SOUTH WALES: Deua National Park, Deua Cave (DE-1), dark zone, ex bat guano, 25.ii.1993, S. Eberhard (in Australian National Insect Collection [ANIC], Canberra). *Paratypes:* 1 ♂ (immature), 3 ♀♀, same locality and circumstances of capture as holotype, 5.iv.1986, E. Holm (in ANIC).

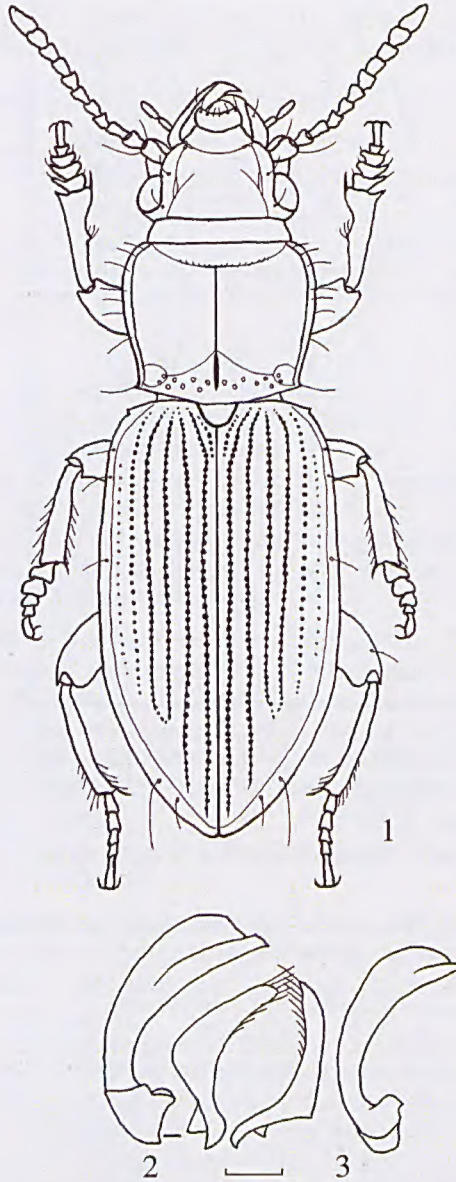
Description. Mostly black; legs and palpi piceous; foreparts shining, elytra somewhat dull, microreticulate. Head smooth; postocular ridges well marked; eyes prominent, lightly inclosed behind. Pronotum mostly smooth but sparsely and coarsely punctate before base, between basal impressions; about 1.2 times wider than long; widest at anterior third; sides lightly rounded to middle, then contracted and sinuate to base; basal angles sharp, about right; anterior angles rounded, not prominent; lateral margins strongly reflexed, plurisetose; basal foveae rather deep, coarsely but sparsely punctate, bordered externally by a well marked ridge. Elytra elongate, convex, sexstriate; inner 4 striae strongly punctate on disc, evanescent towards base and apex; outer 2 striae more weakly indicated; intervals convex, with fine but distinct microsculpture; humeri subdentate; ventral abdominal segments glabrous but coarsely punctate at sides; terminal ventrite bisetose on each side of anus in both sexes; male protarsi with 3 basal segments broadly expanded and spongiöse beneath; male mesotarsi with 2 basal segments similarly developed.

Aedeagus (Fig. 2) rather lightly sclerotised and with no significant armature in the internal sac; apex of median lobe more prominent in lateral view than in *L. ambiguus* (Fig. 3). Length 5.4-6.2 mm; maximum width 1.7-2.1 mm.

Comments. *Laccocenus vicinus* is clearly closely related to *L. ambiguus*, which occurs farther north in New South Wales and southern Queensland (Fig. 4) and the two species doubtless represent vicarious populations derived from a common stock. The new species is distinguished by the comparatively dull elytra, with convex intervals and more strongly punctate striae, and the markedly expanded male pro- and mesotarsi. Sloane (1890) did not observe the rather weakly modified male mesotarsi in his *L. ambiguus* but in an annotation to his personal reprint of his paper (in ANIC), he corrected this; likewise, he corrected the published width of his male holotype from 3.75 mm to 2 mm. Modification of male mesotarsi is uncommon in Carabidae, except in the Harpalinae, and has not been reported previously in the Psydrinae.

Laccocenus vicinus shows no morphological adaptation to a cavernicolous life-style and may well exist also in neighbouring surface habitats. However, the presence of a perennial population in bat guano in Deua Cave and the clear immaturity of the male paratype confirm that the species is breeding in the cave and that it should be classified as a troglophile. Deua Cave forms part of a restricted subterranean system beneath a small, isolated patch of temperate rainforest, in a much larger eucalypt-dominated wilderness area and it may well serve as a refugium for the species in times of drought.

Unfortunately, no larval material was collected with the type series of *L. vicinus* and larval characters within the genus remain unknown. Adults of *L. ambiguus* have been collected in wet forests, from leaf and log litter, from under bark of fallen timber and from associated polypore fungi and they are presumed to be predators of other arthropods in these habitats.



Figs 1-3. *Laccocenus* spp., habitus and male genitalia. (1) *L. vicinus* sp. n., holotype male; natural length = 5.4 mm. (2-3) median lobes of aedeagi in left lateral views: (2) *L. vicinus* sp. n. (parameres detached); (3) *L. ambiguus* Sloane (median lobe only). Scale line (Figs 2-3 only) = 0.2 mm.

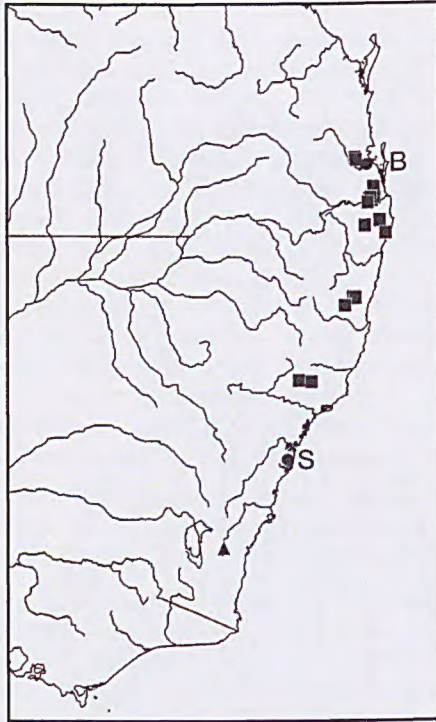


Fig. 4. Map of south-eastern Australia, showing the distribution patterns of *Laccocenus* spp: *L. ambiguus* (■); *L. vicinus* (▲). B = Brisbane; S = Sydney.

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